



Ravalli County
Streamside Setback Committee (SSC)

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From: Ravalli County Streamside Setback Committee (SSC)

JAN 05 2009

To: Board of County Commissioners, Ravalli County, MT
Planning Board, Ravalli County
Planning Department, Ravalli County

Ravalli County Commissioners

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Date: January 5, 2009

Subject: Transmittal of Minutes and Supporting Scientific Data for Proposed Final Draft of the Streamside Protection Regulation (SPR).

We are pleased to enclose the approved, in accordance with our County Attorney's guidance, minutes of the October 28, and November 18, 2008 Meetings. Enclosed, also, is the copy of the Supporting Scientific Data which was approved on November 18, 2008 by the SSC.

The following can also be finalized and provided if the BCC desires. However, because the SSC is to sunset these documents maybe moot. Please let me know the County's desires.

1. A proposed public education plan that focuses on the context and content of the draft regulation, **which per Resolution 3000 was to have been developed by the Planning Department and adopted by the SSC**, can be created by the SSC for education and feedback meetings with the Public and the other Ravalli County government bodies.
2. If missing from the County's current files, copies can be provided of other existing material and documents including our interim report, copies of presentations made to the SSC and public, working documents such as our Plan and Big Questions list, a Summary of those SSC members that are available for development of other documents such as a "Setback Best-Maintenance Practices" manual and any other files documenting the history of the SSC process and deliberation.

Again, the members of the Committee appreciate the opportunity to have served Ravalli County in this important undertaking,

Respectfully submitted,

Clay Dethlefsen
Chairman, Streamside Setback Committee

Attachments: as



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Ravalli County Streamside Setback Committee (SSC)

Minutes for Meeting of October 28, 2008

A meeting of the Streamside Setback Committee was held on October 28, 2008, in the Commissioners' conference room at the Ravalli County Administrative Center. **Clay Dethlefsen**, Chairman, called the meeting to order at 7:07 P.M.

**Members
present:**

Chris Clancy
(Departed
7:50PM-Excused)
Clay Dethlefsen
Howard Eldredge
(Departed
7:50PM-Excused)
Jay Evans

Linda Habeck
Ben Hillicoss
Ira Holt
John Horat
Travis Martinez

Eddie Olwell
George Marshall
Tom Parker
Al Pernichele
Roger DeHaan
(Late Arrival
Okayed)

**Members
absent:**

Kielian DeWitt
(Excused)
Laurie Riley
(Excused)

Laura Hendrix
(Excused)
Dorene Sain
(Un-excused)

Staff present:

None

BCC Liaison:

Kathleen Driscoll (Commissioner)

Minutes:

Public comments: No Comments were made during the Public Comment Period.

Unfinished Business:

Detailed review of the SPR draft of 10/08/08 continued with **Chris Clancy** presenting the concept and revision developed by him and Tom Parker for paragraph 5. Removal of Vegetation, Section 5, page 10.

Chris stated that he and Tom had developed recommended revised language for paragraph that was intended to give more detail to the land owner on removal of vegetation. The Committee reviewed the proposed language and determined that a modified version of it should be used to replace the existing language. Key points for the revision were that it should state that the view of the stream should be based on the owners residence, should not any specific distance from the high water mark, should include a statement focused on maintenance of diversity of trees and shrubs, leave at least 1/2 of the riparian density in place, emphasizing that riparian vegetation near the stream should be more dense than that near a residential structure,

encourage the land owner to consult with local authorities when addressing fire protection, best practices should be followed for removal of vegetation, local authorities should be consulted for guidance on vegetation removal, weed control should not be included in this paragraph, and any statement for burning and mowing need not be included as the main thrust of the paragraph was addressing vegetation removal not specifically the method, and that lawns in the Buffer were to be prohibited.

Ben developed the language, all concurred. Total content of Section including new wording of paragraph 5 was approved by full committee consensus.

Clay then reviewed all paragraphs in Section 6 and Section 7; all members concurred that they were okay as written.

Clay then addressed Section 8: Variances noting that it had been designated at the SSC meeting of October 21, 08 for further review and amendment.

Al stated that he thought paragraph 1.5 of this section could cause the land owner to incur high costs to show the Zoning Board of adjustment that his request would not cause excessive impacts to water quality, stream stability, fish and wildlife habitat or natural flood flow heights. Committee discussed this point at great length and determined that paragraph 1.5 was okay as written. All concurred to leave it as written.

Clay noted that the starting word "Sitting" in paragraph 2.7 should be changed to "Positioning" so that that provision would read: Positioning of lawns and grass as far as possible from riparian areas. Full Committee agreed.

Clay asked if all "red" highlighted changes insert in Section 8 since the last meeting met with SSC member approval. All concurred. Section 8 as amended was then approved by full SSC members.

Clay stated that Section 9: SPR Zoning Board of Adjustments, was designated for further review at the last meeting and noted that paragraph 5) stated that the Board of County Commissioners (BCC) was the first line of appeal from decisions of the Zoning Board Of Adjustments. Discussion then followed noting that that would give the Legislative and Executive Body of the County the right and authority to review the Zoning Board's quasi-judicial decision causing a conflict with Constitutional provisions. The discussion reviewed the concept noting that in Montana the first line of Appeal from a judicial decision was the District Court. Discussion continued with Travis noting that the provision for the BCC to review the decision on appeal of the applicant was focused on minimizing the impact on the applicant as to costs, time and effort required to employ an attorney. It was noted that the applicant need not hire an attorney but could handle his own case on a "Pro Se" basis. This happening was thought to be unlikely since most applicants do not have the capability to handle their own appeals. Final recommendation on this criterion was to "Flag" this provision, write it stating both ideas: BCC review and Appeal to the District Court, and let the legal review by the County Attorney sort out the correct method and sequence of appeal from a decision of the ZBA. All SSC members concurred.

Clay noted that paragraph 8) stated that health and safety of the people shall prevail and recommended for consistency within the SPR that this phrase read: "health, safety and welfare of the people shall prevail." All SSC members agreed to this amended wording.

Clay then asked if all other the areas typed in red in this Section were okay. All SSC members concurred that they were okay. Section 8 was then Okayed as amended by the SSC members.

Clay then noted that Section 10: Enforcement and Section 11; Violations were okayed at the last SSC meeting but asked if there were any changes need to these section at this time. No changes were identified but it was reemphasized that Section 10 was **"Flagged"** for County Attorney determination of what provision of the MCA controlled the enforcement of the SPR so that the blank space for this designation could be filled in.

The title page of the SPR was then reviewed and it was determined that the phrase "Streamside Setback Committee Review Draft 2" no longer applied, and that the dated needed to be changed to 10/31/2008 The phrase's wording was then changed to note that this was now the Final Draft Proposal Recommendation and that this was consistent with the requirement placed upon the SSC by Resolution 3000.

The SPR was then reviewed to insure that all changes/modification agreed to at the last meeting were recorded properly.

Ben noted the need for a minor format change to the table of Contents, which was done.

Roger noted that paragraph 1.4 was written with some section not being complete sentences. This was changed so that all sentences would be complete sentences.

Paragraph 1.4 Intent and Scope was approved by the full SSC members with sentences 5 and 6 approved by the full members as being written as intended at the last SSC meeting.

Paragraph 1.5 was then addressed noting that it still required the insertion of the effective date of the SPR, which was to be inserted after BCC enactment. All SSC members acknowledged this need.

Paragraph 1.6 Jurisdiction was reviewed and it was noted that the phrase "and State owned lands" was flagged for verification of authority delegation to the County by the State of Montana. This Paragraph remained flagged for this purpose. All SSC members concurred.

Two adjustments were then made to Paragraph 1.9 Definition, Item 3. First change was the removal of "Best Practices or" phrase so that the item 3 designation started with the underlined phrase "Best Management Practices." Also, the word "Buffer" was changed to read "Setback." in the fourth line of this item. All SSC members concurred in these adjustments.

The Grandfathering paragraph was next assessed and it was determined that the change reflected by this draft version was not as it was approved by the SSC members at the last meeting. However, it was determined that the wording "non-conforming uses" in this paragraph and throughout the document should be eliminated and changed to reflect that all legally existing uses at the time of enactment of this SPR were grandfathered and that the wording "...all amendments to this SPR and..." should be modified to note "all changes" wording should replace all amendments wording.

As a result of this change Paragraph 11 "Nonconforming Use" was eliminated in its entirety. All SSC members concurred in this elimination.

Subsequently, it was noted that the formatting of other paragraphs in this section was not consistent. Specifically paragraphs 16, 17 and 18 were flagged for correction. All SSC members concurred in this need.

Paragraph 27. 124 Permits had been added as a result of the SSC member approval from the last meeting. It was reviewed for content and context and was found to be written as approved at the last meeting. All SSC members approved this addition as written.

Section 2: Buffer and Setback Requirements were reviewed and it was noted that this Sections formatting was inconsistent. All SSC members agreed that the formatting needed to be corrected, and its content modified to eliminate the "non-conforming uses" phrase. Subsequently, all SSC members approved this Section.

This then concluded the review of the changes to the document approved at the last SSC meeting.

A motion was then made by Roger to approve the SPR as amended. Ira seconded the motion, and the SSC members approved the SPR for forwarding to the BCC, the Planning Board and the Planning Department by an 11 for and 1 against vote. Based on this vote the SSC chair declared the SPR Approved for forwarding and in compliance with the requirements of resolution 3000.

Summary of the vote (Approval – Aye; Disapproval – Nye):

Chris Clancy (Departed 7:50PM- No vote)	Linda Habeck - Aye	Eddie Olwell - Aye
	Ben Hillicoss – Aye	George Marshall - Aye
Clay Dethlefsen - Aye	Ira Holt - Aye	Tom Parker - Aye
Howard Eldredge (Departed 7:50PM- No vote)	John Horat - Aye	Al Pernichele - Aye
	Travis Martinez - No	Roger DeHaan - Aye
Jay Evans - Aye		

Subsequently, Travis noted that he wish to provide a minority opinion to go along with his no vote. It was approved and it was noted by the Chair that this opinion had to be in the hands of the SSC Committee by October 31, 2008 or it would not accompany the forwarding of the Approved SPR.

It was further noted that the absent members of the SSC and the members voting for approval of the SPR could also have the opinions submitted with the SPR forwarding. The criteria was the same as for the minority opinion, they had to be ready to go forward and in the hands of SSC Committee by October 31.

Additionally it was agreed that an E-mail, as suggested by Jay, would be sent out to the absent members noting that and statement of support or non-support could be forwarded with the submittal of the SPR, and that the say criteria would apply. Ben was to send out this E-mail.

Next item addressed by the SSC members was the Summary of the Public Comments created by George. George noted that based on the now approved Final Draft Proposal of the SPR he would have to update the actions taken by the SSC in addressing these public comments. This need was acknowledged by all SSC members and suspended for completion October 30, 2008.

Next item on the agenda the transmittal letter was addressed. It was determined that two transmittal letters would be required. The first letter was for submittal of the approved SPR and Summary of the SPR Comments from the Public, and the second was for forwarding of the supporting scientific data, the recommended program for continued public interaction, the full identification of those members who are willing or likely to continue with the SPR needs (including Best Practices Manual), a statement our concept for returning the SPR—after its review by the Staff (if necessary) for revision, the concept of interaction between the SSC and the legal review process to insure their understanding of our SPR, and to recommend a briefing to the BCC, the legal department, the Planning Department and to the Public so that all would understand the SPR in its Final Draft Proposal form, context and content.

The first transmittal letter was to be developed by George with its primary focus and contents to be to address the forwarding of the final draft proposal of the SPR, the minority reports, the noting of our thanks to the Commissioners and the general public and the acknowledgement that the SSC would welcome the opportunity to make a presentation to the BCC, et.al. This was suspended for October 30, 2008.

The development of the Scientific Supporting data and all other requirements as stated for the Second Transmittal Letter were dead lined for November 14, 2008 so that they would be available for the next and probably final meeting to be held on November 18, 2008 at 7:00 PM in the BCC meeting room.

Linda then made a recommendation that the lone member of the Public. Mr. Eric Broch, be extended an invitation to address the SSC if he wished. Mr. Broch did speak and stated that he thought the whole SSC and SPR process was nothing more than a "Taking of Private Property." A congenial discussion between the SSC members and Mr. Broch ensued with both sides addressing their points. Mr. Broch was then thanked by the chair for his input and expression of his opinion. He accepted the thanks.

The date of the next SSC meeting, November 18, 2008 at 7:00 PM was re-announced by the Chair.

The meeting was adjourned at 9:52 PM.



Ravalli County Streamside Setback Committee (SSC)

Minutes for Meeting of November 18, 2008

A meeting of the Streamside Setback Committee was held on November 18, 2008, in the Commissioners' conference room at the Ravalli County Administrative Center. **Ben Hillicoss**, vice-Chairman, called the meeting to order at 7:03 P.M.

Members present: DeHann, Roger; DeWitt, Kielian; Eldrege, Howard; Habeck, Linda; Hillicoss, Ben; Holt, Ira; Olwell, Eddie; Parker, Tom; Pernichele, Al; Morrell, Vanessa; Riley, Laurie
James Rokosch – Commission liaison

Members absent: Clancy, Chris; Dethlefsen, Clay; Evans, Jay; Hendrix, Laura; Horat, John; Marshall, George; Martinez, Travis; Sain, Dorene

Adoption of agenda: The published agenda was adopted without change.

Approval of prior meeting minutes:

1. Motion by Howard to approve 9/23 minutes, Eddie second, unanimous vote for acceptance.
2. Motion by Kielian to approve 10/2 & 10/7 minutes, Ira second, unanimous vote for acceptance.
3. Motion by Al to approve 10/14 minutes, Eddie second, unanimous vote for acceptance after correcting that Linda was present at the meeting.
4. Motion by Ira to approve 10/21 minutes, Al second, unanimous vote for acceptance.
5. We are missing the minutes from 10/28. Clay should make these available.

Public comments:

Chuck Roubik: Chuck expressed thanks to the SSC for our efforts over the past year and a half. He feels our efforts were much needed for the entire community.

Old Business:

- **Scientific Data Documentation**

Al feels that Chris's document is sufficient for justifying distances. Roger is impressed with the bibliography and feels that justification is strong. Howard moves that the document be appended to the Draft Regulation submitted 10/31/08. Laurie seconded the motion.

Discussion- the document needs a date (Roger). There was some discussion of all the other supporting documentation from the SSC i.e. sub-committee meetings minutes. Vanessa will organize all the other supporting documentation after doing the same for the county-wide zoning effort. Howard pointed out that the SSC has good data to be used as a starting point for any future efforts and documentation should be preserved.

Unanimous vote to append the Scientific Data document to the Draft Regulation after including a date on the document.

- Jim Rokosch explained how the Commissioners are reviewing legal options and discussing what to do with the Draft SSC regulation.
- Laurie asked for volunteers for a Riparian Best Practices Group to work with community citizens and relevant businesses (primarily Builders Assoc and local realtors) regarding construction in riparian corridors. Members from this group would be available (only when called upon) to make site visits and discuss factors relevant to stream processes and riparian health related to building site placement. An email soliciting volunteers will be sent out and a meeting will be arranged to see if taking this concept forward is viable.
- A transmittal letter will be written By Al Parnichele to accompany the Scientific Data documentation.
- Christmas Party – Mrs. and Mr. DeWitt has invited the members of the SSC and their spouses, to attend a private Christmas Party at their home at 6:00 pm Saturday, Dec 6. Please, RSVP. It will be a Pot-luck and BYOB so please let Kielian know what you plan to bring. She also asked Jim and Vanessa if they would like to attend.

New Business:

Ben confirmed that this will be the final business meeting of the SSC and again thanked everyone for their hard work.

The meeting was adjourned at 8:05 PM.

This is the end of this document!

**Summary of the scientific approach taken to delineate the buffer zones
and setback distances in the Ravalli County Streamside Protection
Regulation Final Draft Proposal
(11/18/08)**

Introduction

This document was prepared to support the Ravalli County Streamside Protection Regulation Final Draft Proposal. Specifically, the buffer and setback distances and stream classifications in Section 3 of the proposal are discussed in this document. We outline the basis for those recommendations and list the scientific literature that supports them.

Literature Review

Prior to formulating recommendations for buffer and setback distances to the committee, a literature review was undertaken to form a foundation and understanding of what various scientific studies had determined. Because the number of studies that recommend buffer distances is voluminous, it was determined that reviewing summaries of these studies was the most efficient method to follow. Most of these summary documents were designed to gain a general understanding of the state of the science on buffer widths necessary for various resources. Each summary document refers to anywhere from a few papers to hundreds of papers.

Our review found that varying buffer distances may be recommended depending on factors such as which resource is being protected, the condition of the buffer, topography, soils and geology, condition of adjacent properties, and other factors. Summarizing hundreds of studies can be difficult because the recommended buffer distances are variable due to the above considerations.

One recently written set of summary documents are particularly relevant to Montana streams. In 2008, Janet Ellis of Montana Audubon completed 3 papers recommending buffer widths for 3 different natural resources: water quality, fisheries and wildlife. The summary paragraphs from each of her documents are:

1. Water Quality:

In order to protect the water quality of streams, scientific studies generally recommend that at least a 100-foot (30-meter) vegetated buffer be maintained. Steeper slopes and other local factors may require larger vegetated buffers. A minimum of a 50-foot (15-meter) buffer may be sufficient to protect certain aspects of water quality. However, for significant removal of nitrates, sediments, and pathogenic bacteria, at least 100 feet is recommended.

2. Fisheries:

In order to maintain fish and aquatic habitat, scientific studies recommend that a:

- 100-foot (30-meter) riparian vegetated buffer should be maintained at a minimum;**
- 150-foot (46-meter) vegetated buffers should be maintained in forested areas—including areas in Montana with cottonwood gallery forests—so that large woody debris recruitment is sustained; and**
- Multi-tiered system should be considered in areas occupied by native bull trout and cutthroat trout, with 300-foot buffers recommended on fish-bearing streams (3 tree lengths); 150-foot buffers on non-fish-bearing streams and reservoirs; and 100-foot buffers on seasonally active (intermittent or ephemeral) streams (1 tree length).**

3. Wildlife

Scientific studies recommend that, in order to protect wildlife and wildlife habitat, 300-foot (100-meter) stream vegetated buffers be maintained. Certain wildlife species need a larger vegetated buffer.

We selected distances that were within the range recommended by the appropriate science, but we tended to keep our recommendations at the lower end of the range of distances. For example, for each of the 3 resources discussed above, we applied these distances:

- 1. Water Quality – 50 feet**
- 2. Fisheries – 100 feet**
- 3. Wildlife – 200 feet**

Each of these distances is less than those recommended by Ellis, and our literature review found recommended distances that were both larger and smaller than the ones we applied. The distances we selected are in the lower range of recommendations found in the literature, but we believe they will protect the given resource in most situations. The distance necessary to

protect wildlife is, perhaps, the most difficult to delineate. This is due to the variety of wildlife that use riparian areas, but that also use connected upland habitats. The 200 foot buffer that we applied to wildlife is not adequate for many species, so this recommended distance represents a compromise aimed at protecting water quality, fish habitat, and some wildlife species while recognizing that it is impractical to protect habitat for all species in a moderately developed valley.

A complete list of literature used in this analysis is presented on page 9.

Ravalli County Streams

Once we developed our buffer recommendations, we applied them to Bitterroot Valley streams. Streams were grouped into four classes and buffer distances were assigned to each class based on which resources are most significant for a particular stream class. Class 1 includes the mainstem Bitterroot River and it was assigned a 200 foot buffer based on its importance as a wildlife corridor. Class 2 streams include the East and West Forks of the Bitterroot River and larger tributary streams with relatively wide riparian areas. Class 2 streams were assigned a 100 foot buffer based on their significance as fish-bearing streams. Class 3 streams include other perennial tributary streams that are somewhat significant for fish, but also important for water quality. Class 3 streams were assigned a 75 foot buffer, which is a compromise between the fisheries and water quality distances described above. Class 4 streams are intermittent streams. Class 4 streams are important for water quality and were assigned a 50 foot buffer. These stream classes are described in more detail below.

We delineated a buffer width and setback distance (Figure 1). Almost all of the scientific literature recommends buffer widths for protecting various natural resources. Additional setbacks are often included to protect the buffer zone from human activities that could diminish its effectiveness. These additional setback areas are located between the outer edge of the buffer zone and permanent structures. These areas would be used for purposes such as lawns or any other domestic use that is not a permanent structure. For the Bitterroot Valley, we recommended a 25 to 50 foot setback from the outer edge of the buffer for permanent structures. Figure 1 provides a conceptual illustration of the buffer and setback.

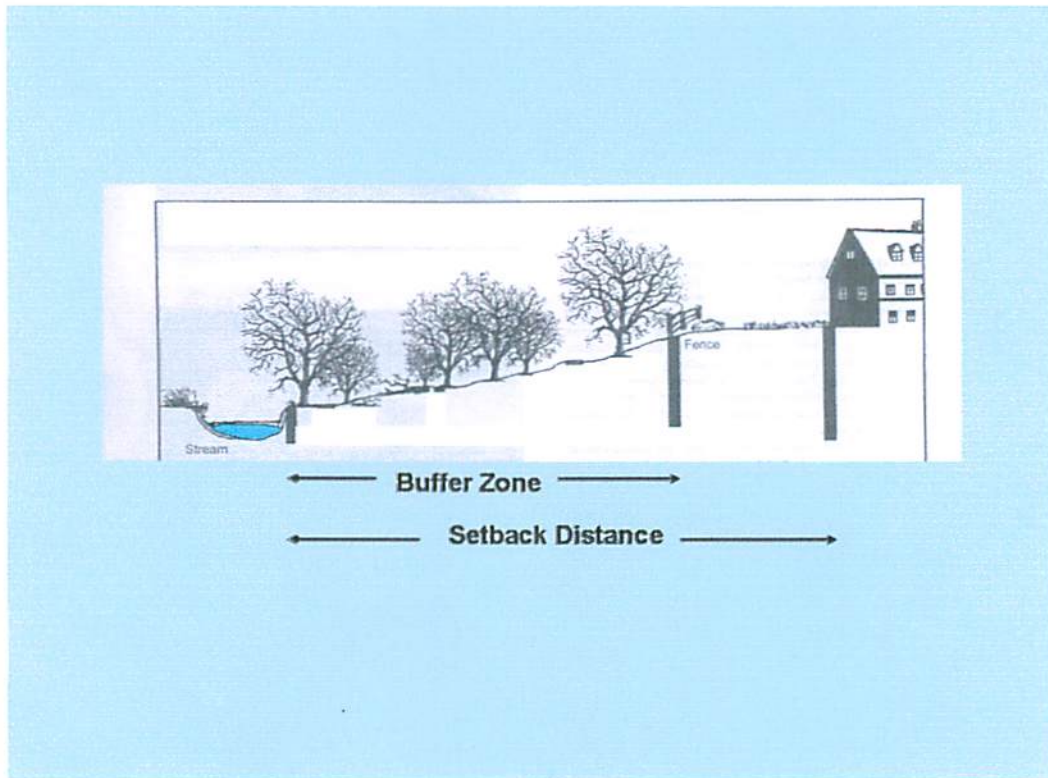


Figure 1. Conceptual Illustration of Buffer Zone and Setback Distance as defined in the Final Draft Proposal.

Class 1 – Bitterroot River – Buffer width is 200 feet with an additional 50 feet for the setback. Ravalli County Floodplain regulations regulate construction of structures within the 100 year floodplain.

The Bitterroot River supports significant and varied wildlife populations. The riparian areas adjacent to the Bitterroot River vary from very narrow in short reaches, to over a mile wide in some reaches. The river is well known for a tendency to migrate laterally and significantly during years of high water. The fish population is highly sought after by recreationists. The 200 foot buffer is protective of Water Quality and Fisheries in most cases, and also reflects the importance of the Bitterroot River as a core wildlife corridor. The total setback is 250 feet, which includes the 200 foot buffer plus an additional 50 foot setback distance.

Class 2 – Large streams including the East and West Fork Bitterroot River. Buffer is 100 feet; setback is an additional 50 feet for a total setback of 150 feet. Ravalli County Floodplain regulations apply to the East Fork Bitterroot and West Fork below Painted Rocks Reservoir.

These larger streams are often, but not always, direct tributaries of the Bitterroot River. They tend to have wider riparian widths than Class 3 streams; therefore, they tend to provide more wildlife habitat. They also can be migratory pathways for wildlife between the Bitterroot River and the mountains. Unless they are dewatered, they support resident fisheries and often are important spawning areas for Bitterroot River fish. The Class 2 buffer width is 100 feet which meets most fisheries objectives, and these streams include an additional 50 foot setback for a total setback of 150 feet. This buffer distance is inadequate to protect or maintain some wildlife habitat, so landowners are encouraged to voluntarily use a larger buffer along Class 2 streams where it is possible to do so.

Class 3 – Small streams – Buffer width 75 feet, setback an additional 25 feet for a total setback of 100 feet.

Small, perennial streams support streamflow all year for most years. They often support a fishery and have a wider riparian area than intermittent streams. The buffer width of 75 feet is an intermediate distance between water quality and fisheries protection. The setback is 100 feet, which includes this 75 foot buffer zone plus an additional 25 feet.

Class 4– Intermittent Streams –Buffer width 50 feet, setback an additional 25 feet for a total setback of 75 feet

Intermittent streams support streamflow for only part of the year, generally during snowmelt and significant rainfall events. Due to the fact that these streams are dry for long periods of time, they generally do not support a fishery. However, they do contribute water to perennial streams and can have riparian areas that support various species of wildlife. With this in mind, the setback is 75 feet which includes a 50 foot buffer zone which is the minimum suggested for water quality.

Differentiation of Class 2 and 3 Streams

We used 4 criteria to differentiate Class 2 and Class 3 Streams (Table 1). These criteria were helpful in deciding which streams should have wider buffer widths and setbacks. The process of classification is inexact since streams exist on a continuum from small to large. However, the use of 4 criteria allowed us to use local knowledge in a consistent manner to guide our decisions. In general, the larger streams tend to also have wider riparian zones, significant fisheries and contribute to water quality in the Bitterroot River. The criteria we used are:

1. **Drainage Area** – We used two data sources for this information. They were summarized in a table created by Laura Hendrix, Floodplain Administrator for Ravalli County. The sources are the USDA-SCS “Hydrology of Bitterroot River Drainage (1972)”, and USGS Water Resources Investigations Report 92-4048. The data were significantly different in the two reports so we used relative values as opposed to actual drainage area. Streams with larger drainage areas will generally have larger stream channels and more likely to have streambank erosion and resulting sediment contributions.
2. **Riparian Width** – The 2007 National Wetland Inventory riparian layer was used to measure riparian widths. These data were developed by the Montana Natural Heritage Program and are based on 2005 aerial photographs and field evaluation. These widths were used as a surrogate for wildlife habitat. The widths varied, sometimes significantly along streams and even along the same stream. The width used in the classification was a general “average” for each stream.

3. Fishery – We used data from the FWP database to score streams based primarily on known spawning use by Bitterroot River fish. Streams that support known spawning migrations or that have otherwise outstanding fisheries were given a higher ranking.
4. Stream length on private land – Almost all of the streams listed flow through public and private lands. Streams that have a significant number of miles on private land were given a higher ranking since these reaches are most affected by residential development.

These 4 criteria were considered for many of the streams in Ravalli County. We discussed only the larger streams in the valley. Any perennial streams we did not classify automatically were Class 3 streams. Rather than using an exact numerical score for each stream, we assigned quality rankings for each category as follows:

+ (above average),
0 (average)
– (below average).

In most cases, streams that received two or more “+” ratings were assigned to Class 2. However, a stream that had one outstanding criterion could be ranked a Class 2 stream on that factor alone if it was considered significant enough based on our knowledge of the stream. In general, there was little disagreement about which class a stream belonged to among those who participated in the ranking process.

Table 1. Classifications of streams in Ravalli County

Stream Name	Drainage Area	Riparian Width	Fishery	Stream Length	Stream Class
Bass Creek	-	+	0	0	2
Bear Creek (North)	0	+	+	+	2
Bear Creek (South)	0	+	+	+	2
Big Creek	0	+	+	+	2
Blodgett Creek	--	+	+	+	2
Bunkhouse Creek		-	0		3
Burnt Fork	+	-	0	+	2
Chaffin Creek	-	+	0	+	2
Eightmile Creek	-		-	+	3
Fred Burr Creek	-	+	0	+	2
Gird Creek	0	-	0	+	3
Hughes Creek	+		0	0	2
Kootenai Creek	0	+	+	+	2
Lick Creek	-	-	0	-	3
Lost Horse Creek	+	+	+	+	2
Mill Creek	0	+	+	+	2
McCalla Creek	-	-	0	+	3
Nez Perce Fork	+	-	+	+	2
One Horse Creek	-	+	0	+	2
Roaring Lion Creek	0	+	0	+	2
Rock Creek	+	+	-	0	3
Rye Creek	+	-	+	+	2
Sawtooth Creek	0	+	0	+	2
Sheafman Creek	-	0	0	+	3
Skalkaho Creek	+	+	+	+	2
Sleeping Child Creek	+	0	0	+	2
Sweathouse Creek	-	-	+	+	3
Sweeney Creek	0	+	0	+	2
Threemile Creek		-	0		3
Tincup Creek	0	+	+	+	2
Willow Creek	0		0	+	3

+ (above average), 0 (average), - (below average).

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